

#### WHAT IS CLAIMED IS:

1. A process of a catalytic combustion, comprising steps of:  
providing a fuel at a first temperature; and  
contacting said fuel with a noble metal catalyst dispersed on a supporting material so as to raise said fuel to a second temperature sufficient to initiate said combustion, wherein a raising time from said first temperature to said second temperature is within 30 minutes.
2. The catalyst according to claim 1, wherein said fuel is one of a mixture of water and alcohol and a single alcohol.
3. The catalyst according to claim 2, wherein said alcohol is one selected from a group consisting of a methanol, an ethanol and an isopropanol.
4. The catalyst according to claim 1, wherein said fuel is one of a mixture of hydrocarbon and alcohol and a single hydrocarbon.
5. The catalyst according to claim 4, wherein said hydrocarbon is one selected from a group consisting of a methane, a liquid petroleum gas (LPG), a gasoline, an hexane and an naphtha oil.
6. The process according to claim 1, wherein said noble metal catalyst is a boron nitride supported noble metal catalyst.
7. The process according to claim 1, wherein said noble metal is selected from a group consisting of platinum (Pt), palladium (Pd), rhodium (Rh), Ruthenium (Ru) and a mixture thereof.
8. The process according to claim 1, wherein said catalyst is dispersed on said supporting material through a substrate.
9. The process according to claim 1, wherein said substrate is a paste.
10. The process according to claim 9, wherein said paste is a hydrophobic paste.

11. The process according to claim 10, wherein said paste is made of a thermal conductive material.

12. The process according to claim 1, wherein said first temperature is room temperature.

13. The process according to claim 1, wherein said second temperature is in the range from 500 to 1000°C.

14. The process according to claim 1, wherein said supporting material is a porous material having a relatively higher specific surface area and pore volume for facilitating said combustion.

15. The method according to claim 1, wherein said supporting material is one selected from a group consisting of  $\gamma$ -alumina, titania, zirconia, silica, DASH220 and N200.

16. A method for dispersing a noble metal catalyst used in a catalytic combustion, comprising steps of:

providing said noble metal catalyst;

mixing said catalyst into a substrate; and

dispersing said substrate with said catalyst on a supporting material,

thereby a specific surface area of said catalyst being increased so as to facilitate said catalytic combustion.

17. The method according to claim 16, wherein said catalyst is a boron nitride supported noble metal catalyst.

18. The method according to claim 17, wherein said noble metal is selected from a group consisting of platinum (Pt), palladium (Pd), rhodium (Rh), Ruthenium (Ru) and a mixture thereof.

19. The method according to claim 16, wherein said substrate is a paste.

20. The method according to claim 19, wherein said paste is a hydrophobic

paste.

21. The method according to claim 20, wherein said paste is made of a thermal conductive material.

22. The method according to claim 16, wherein said supporting material is a porous element having a relatively higher specific surface area.

23. The method according to claim 16, wherein said supporting material is one selected from a group consisting of  $\gamma$ -alumina, titania, zirconia, silica, DASH220 and N200.

24. A substance for a catalytic combustion, comprising:

a boron nitride supported noble metal catalyst for catalyzing said combustion;

a substrate for suspending said catalyst; and

a supporting material for dispersing said substrate with said catalyst for increasing a total surface area of said catalyst, thereby said catalytic combustion being initiated within 30 minutes.

25. The catalyst according to claim 24, wherein said noble metal is selected from a group consisting of platinum (Pt), palladium (Pd), rhodium (Rh), Ruthenium (Ru) and a mixture thereof.

26. The method according to claim 24, wherein said substrate is a paste.

27. The method according to claim 24, wherein said supporting material is a porous element having a relatively higher specific surface area.

28. A catalyst for catalytic combustion as claimed in claim 1 comprising a boron nitride support and a noble metal, wherein said noble metal is dispersed on a surface of said boron nitride support.

29. The catalyst according to claim 28, wherein a specific surface area of said catalyst ranges from 1 to 200 m<sup>2</sup>/g.

30. The catalyst according to claim 28, wherein a loading of said noble metal ranges from 0.1 to 5.0 wt%.

31. The catalyst according to claim 28, wherein said noble metal is selected from a group consisting of platinum (Pt), palladium (Pd), rhodium (Rh), Ruthenium (Ru) and a mixture thereof.

32. The catalyst according to claim 28, wherein said fuel is one of a mixture of water and alcohol and a single alcohol.

33. The catalyst according to claim 32, wherein said alcohol is one selected from a group consisting of a methanol, an ethanol or an isopropanol.

34. The catalyst according to claim 28, wherein said fuel is one of a mixture of hydrocarbon and alcohol and a single hydrocarbon.

35. The catalyst according to claim 34, wherein said hydrocarbon is one selected from a group consisting of a methane, a liquid petroleum gas (LPG), a gasoline, an hexane and an naphtha oil.